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Process and apparatus for producing and/or packaging cigarettes

P a t e n t c l a i m s

1. Process for producing and/or packaging tobacco products,
in particular cigarettes (11), characterized in that in the
regions of, in particular, increased accumulation of (free)
tobacco particles (19), on account of the cigarettes (11) being
5 subjected to mechanical loading, the tobacco particles (19) are
intercepted and conveyed away and preferably centrally
collected.

2. Process according to Claim 1, characterized in that the
10 tobacco particles (19) are transported away by extraction by
suction and/or by collecting on conveying elements - conveying
belts.

3. Process according to Claim 1 ~~or 2~~, characterized in that
15 suction air containing tobacco particles (19) is led through a
tobacco separator (45), and in that within the tobacco
separator (45), in the region of a separating element (48), the
tobacco particles (19) are separated from the air and
collected.

4. Process according to Claim 1, characterized in that, once the tobacco particles (19) have been separated out, the suction-extraction air is cleaned, in particular with the aid of air filters (49) within the tobacco separator (45), the air being led through the air filters (49).

5. Apparatus for producing cigarettes (maker) or for packaging cigarettes (11) or other tobacco products (packer), in each case with elements and subassemblies for handling the tobacco or the tobacco products, in particular cigarettes (11), characterized by the following features:

- a) arranged in the region of the elements and subassemblies for handling the tobacco or the cigarettes (11) are collecting elements, conveying elements and/or suction-extraction elements for the purpose of receiving tobacco particles (19) caused to accumulate on account of the handling,
- b) the intercepted and/or collected tobacco particles can be conveyed away by the conveying elements and/or by suction lines,
- c) the tobacco particles (19) can be fed by the conveyors and/or suction lines to at least one tobacco separator (45), which separates off, and collects, the tobacco particles (19),
- d) the intercepted and collected tobacco particles (19) can be removed from the tobacco separator (45).

516B 1 6. Apparatus according to Claim 5, characterized in that arranged in a packaging machine (10) for cigarettes (11), in the region of a cigarette magazine (13) for forming cigarette groups (15), is at least one suction-extraction element (32) for the purpose of extracting tobacco particles (19) by suction.

7. Apparatus according to Claim 6, characterized in that the suction-extraction element (32) is arranged in a rear region of the cigarette magazine (13), in particular directly above the

movement plane of push rods (26) for pushing cigarette groups (15) out of the cigarette magazine (13).

8. Apparatus according to Claim 7, characterized in that the
5 suction-extraction element has a suction member (33) which is directed towards ends of the cigarettes (11), in particular filter ends thereof, extends transversely over the entire width of the cigarette magazine (13) and has suction chambers (34) for receiving suction air with tobacco particles (19), the
10 suction chambers (34) being open at least partially on the side directed towards the cigarettes (11) in the cigarette magazine (13).

9. Apparatus according to Claim 8, characterized in that at
15 least one suction-extraction line (36, 37), preferably two suction-extraction lines (36, 37) arranged at mutually opposite ends, is/are connected to the suction member (33) and/or to the suction chambers (34) for the purpose of extracting air with tobacco particles (19) by suction.

20 10. Apparatus according to Claim 5, characterized in that in the region of a conveyor for cigarettes (11) or cigarette groups (15), in particular in the region of a pocket chain (17) with pockets (16) for receiving in each case one cigarette
25 group (15), at least one suction-extraction subassembly (23) is positioned, in particular in the region where the cigarette groups (15) are pushed into the pockets (16) of the pocket chain (17).

30 11. Apparatus according to Claim 10, characterized in that the suction-extraction subassembly (23) has a suction-extraction housing (24) which partially encloses the cigarette conveyor or the pocket chain (17), in particular in the region of a top side and a longitudinal side, a suction-extraction
35 line (25) adjoining the suction-extraction housing (24).

12. Apparatus according to Claim 5, characterized in that tobacco particles (19) falling downwards under their own weight are intercepted, and transported away, by conveying elements,
40 in particular by conveying belts (38, 39), it being possible for the tobacco particles transported by the conveying belts to

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be fed preferably to a suction-extraction subassembly for the purpose of the tobacco particles being transported further by means of suction air.

5 13. Apparatus according to Claim 12, characterized in that arranged beneath cigarette conveyors, in particular beneath the pocket chain (17) or beneath a bottom strand (18) of the same, is a conveying belt (38) which extends in the longitudinal direction of the pocket chain (17) or of the bottom strand
10 (18), it being possible for tobacco particles (19) intercepted by the conveying belt (38) to be fed to a collecting element, preferably an intercepting hopper (20).

15 14. Apparatus according to Claim 5, characterized in that tobacco particles falling downwards under their own weight are intercepted, and directed further, in the region of increased accumulation by collecting elements, preferably by the intercepting hopper (20), a further conveying element for tobacco particles (19), in particular a collecting belt (39),
20 being arranged beneath the intercepting hopper (20).

25 15. Apparatus according to Claim 5, characterized in that tobacco particles (19) transported by a belt conveyor, in particular by the collecting belt (39), can be fed to a suction-extraction subassembly, in particular to a suction tube (40) which is arranged in the region of a deflecting roller (41) of the collecting belt (39) and partially encloses the deflecting roller (41) such that the tobacco particles can be conveyed into the suction tube (40) by the collecting belt
30 (39).

35 16. Apparatus according to Claim 5, characterized in that the tobacco particles (19) received in the region of a packaging machine and/or of a maker can be fed to a preferably central tobacco separator (45), individual suction-extraction lines which run within the packaging machine and/or within the maker opening out, via a connecting member (44), in a main tube (43), which leads to the tobacco separator (45).

40 17. Apparatus according to Claim 5, characterized in that the tobacco separator (45) is positioned, as a cabinet-like structure, outside the packaging machine (10), at a distance

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from the same, the main tube (43) leading out of the packaging machine (10) to the tobacco separator (45).

18. Apparatus according to Claim 5, characterized in that, within a housing (46), the tobacco separator (45) has a fan (47) for producing suction air, it being possible for the taken-in air, which is mixed with tobacco particles (19), to be fed to a separating element (48) for separating off the tobacco particles (19), and for the air freed from the tobacco particles (19) then to be led outwards by the fan (47).

19. Apparatus according to Claim 18, characterized in that, once the tobacco particles (19) have been separated off in the region of the separating element (48), the taken-in air can be led through cleaning elements, in particular through air filters (49).

20. Apparatus according to Claim 5, characterized in that, in the region of the separating element (48), the tobacco separator (45) has a removal arrangement for collected tobacco particles (19), in particular a flap (55) which is positioned at a distance from the base.

21. Apparatus according to Claim 17, characterized in that, on its top side, the main tube (43) passes into the housing (46) of the tobacco separator (45), and in that, once it has been separated off and, if appropriate, cleaned, the air emerges from the housing (46) via an outlet opening (52) likewise provided at the top.

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